

ABSTRACT

**DIODE PUMPED, MULTI AXIAL
MODE INTRACAVITY DOUBLED LASER**

5 A diode pumped, multi axial mode, intracavity doubled, intracavity tripled
laser, includes at least two resonator mirrors defining a resonator cavity. A laser
crystal and a doubling crystal are positioned in the resonator cavity. A tripling
crystal is also positioned in the resonator cavity. A diode pump source supplies a
pump beam to the laser crystal and produces a laser crystal beam with a plurality of
axial modes that are incident on the doubling crystal. This produces a frequency
10 doubled output beam. Further, a diode pumped, multi axial mode, intracavity
nonlinearly-converted laser is provided and includes at least two resonator mirrors
defining a resonator cavity, a laser crystal and a nonlinear conversion apparatus
positioned in the resonator cavity. A nonlinear conversion apparatus is also
positioned in the resonator cavity. A diode pump source supplying a pump beam to
15 the laser crystal and produces a laser crystal beam with a plurality of axial modes
that are incident on the nonlinear conversion apparatus. The result is a nonlinearly
converted output beam that has a % RMS noise of less than 3%

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